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Listeriosis (Circling Disease)

Cooperative Extension South Dakota State University

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FS 492

Listeriosis

(Circling Disease)

Cooperative Extension Service: South Dakota State University and U. S. Department of Agriculture

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Listeriosis is an infectious disease which may affect many species of animals including man. It is distributed throughout the world, but is much less common in tropical than temperate climates. The disease occurs in three different forms; an infection of the brain (encephalitis), an infection of the pregnant uterus (abortion) or an infection of all tissues of the body (septicemia). In South Dakota, the greatest economic loss due to this disease is in cattle and sheep.

CAUSE

Listeriosis is caused by a specific rod-shaped bacterium named *Listeria monocytogenes*. The organism is susceptable to most common disinfectants, but is quite resistant to drying and has been shown to be able to survive in contaminated soil and manure for up to one year. The microorganism can be isolated in the laboratory but special techniques must be used. It has a wide host range and has been isolated from 37 different species of mammals, 17 species of birds, ticks, flies, fish and crustaceans. It has been found in stream water, mud, sewage, slaughterhouse waste, silage, forage and sick room dust.

SPREAD OF THE DISEASE

Since the microorganism is so widely spread in nature, the exact means by which the disease is spread under natural conditions is not clearly understood. The infections may be spread by direct contact from animal to animal; by ingestion of contaminated feed or water; by contaminated particles of dust, manure, urine or saliva gaining entrance to the respiratory tract or eyes; and possibly during breeding.

Large numbers of the organism are present in the uterine fluids, vaginal discharges, afterbirth, feces, urine, and fetuses of cattle or sheep that abort from this infection. This may produce a massive contamination of pastures, lots or buildings. Cases of listeriosis have been recorded in animals which were on pastures previously grazed by infected animals. The disease may spread in a flock of sheep or herd of cattle but it seldom affects all the animals.

Listeria monocytogenes has been isolated many times from poor quality silage. It has been observed that the disease is more common in animals fed silage than among those fed other rations.

OCCURRENCE

In South Dakota the disease has usually occurred from late November to early May, with most cases during February and March. The disease is most common during the first 3 years of life, but animals of all ages and both sexes are susceptible. Beef cattle are more often affected than dairy animals. It has been noted that the disease may be more prevalent 2-4 days after sudden drops in temperature or heavy snowfalls.

SYMPTOMS

The disease can occur in cattle or sheep in three forms: encephalitis, abortion or septicemia. The encephalitis and abortion types are the most common. The disease usually expresses itself in either one way or the other and only in very rare instances are both types seen in an outbreak.

Encephalitic listeriosis. The first indication of disease may be a dullness, a loss of appetite and a rise in temperature. These symptoms are mild and often not observed.

Later, the affected animal may press its head against a solid object or lean against a fence to stand. Frequently there may be drooping of an ear, eyelid or the lips. The head is commonly turned to one side and the animal may wander aimlessly in a circle. The disease has been called "circling disease" because of this symptom. The muscles used for chewing and swallowing may be paralyzed and drooling of saliva may be seen. In the final stages the animal is unable to rise even though it may be be able to move its legs. Sheep rarely recover and usually die within 2-3 days after symptoms are first noticed. Cattle may show symptoms of the disease for 4-14 days before death, but sometimes recover if properly treated.

Abortion from listeriosis. This type of infection may cause premature live births or abortion. Live calves or lambs born prematurely commonly die within a few hours or days with the septicemic type of infection. Abortions most commonly occur during the last third of the gestation period and only rarely will over 25% of the animals be affected. The aborting animal seldom shows symptoms of illness but if the afterbirth is retained the uterus may become infected and serious illness results.

Animals that shed the afterbirth properly usually will recover with no ill effects and may be bred back. They usually calve or lamb normally the next pregnancy.

Septicemic listeriosis. This type of infection occurs most commonly in other animals, but does occur in premature calves and lambs. Death may be sudden with no indication of previous illness, or the animal

may be depressed, weak, and have a tendency to lie down. These symptoms may persist for several days and the animal may breathe hard, slobber, and have a nasal discharge. Convulsions have been seen, but many animals will attempt to eat until death.

DIAGNOSIS

The herd history, symptoms and post mortem lesions may provide a basis for a tentative diagnosis of listeriosis, however, a positive diagnosis requires laboratory examination. Animals with the encephalitic type of listeriosis have lesions in the brain which can only be seen under the microscope. Aborted lambs or calves may have small white spots in their liver. *Listeria monocytogenes* can be isolated from the tissues of the affected animal and this serves to confirm the diagnosis.

CONTROL

Currently there is no commercial vaccine for the control of listeriosis. In the presence of a severe outbreak, consideration might be given to preparation of a vaccine made from the organism isolated from an animal from the specific outbreak. Strict sanitary measures are the most effective method. Infected animals should be immediately segregated from the herd or flock. Aborted calves or lambs and the afterbirth should be burned, buried, or disposed of in a sanitary manner. Special care must be taken to keep feed and water from becoming contaminated by infected fluids and tissues from aborting animals. Predators, dogs, and vermin may play a role in the transmission of the disease to neighboring animals or farms. These animals must be prevented from having access to tissues from an aborting animal. Areas in which affected animals have aborted should be cleaned, thoroughly disinfected and allowed to remain idle for at least 3 months.

Since outbreaks of the disease have been associated with feeding of silage, this portion of the diet should be reduced or eliminated. The continual feeding of low levels of certain antibiotics has also proven beneficial in the control of the disease.

HUMAN HEALTH IMPORTANCE

Approximately 70% of humans who contract this disease die and those who recover commonly suffer from physical or mental defects. Caution should be exercised when handling affected animals or tissues from aborting animals. Meat or milk from cattle or sheep should not be used for human consumption. Man usually is affected with the septicemic form of the disease with a complicating infection of the covering of the brain. Persons of all ages and both sexes are susceptable and it has been incriminated in abortion and early death of infants.

Many other diseases can be confused with listeriosis. Consult your veterinarian. He is trained in the recognition of this disease and in the collection of appropriate specimens for laboratory examination.

CONSULT YOUR VETERINARIAN—
HE'S TRAINED TO HELP YOU PREVENT LOSSES FROM DISEASE

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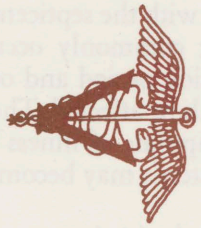

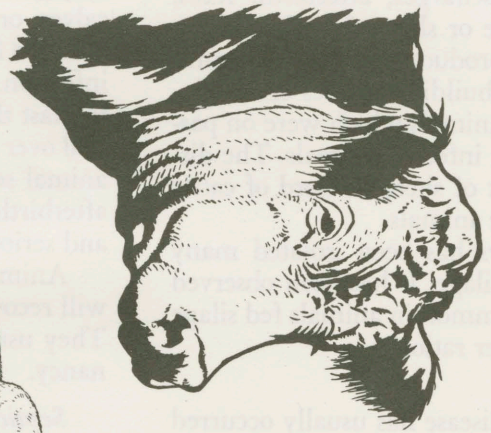

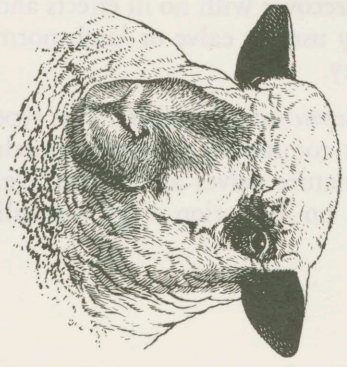

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